

Appl. No. 10/700,233
Amdt. Dated: October 16, 2006
Reply to Office Action of 08/14/2006

REMARKS / ARGUMENTS

For the convenience of the Examiner and clarity of purpose, Applicant has reprinted the substance of the Office Action in *10-point bolded and italicized font*. Applicant's arguments immediately follow in regular font.

1. *All outstanding objections and rejections, except for those maintained below, are withdrawn in light of applicant's amendment filed 6/5/2006..*

Applicant thanks the Examiner for her reconsideration and withdrawal of the referenced objections and rejections.

Claim Rejections—35 USC § 112

4. *Claims 4-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

With respect to claims 4-6, the term "the at least one alicyclic carboxylic acid anhydride" lacks antecedent basis because claim 1 only recites "at least one of the other carboxylic acid anhydrides is an alicyclic acid anhydride", which does not explicitly sat that there is at least one alicyclic carboxylic acid anhydride.

With respect to claim 7 and 8, the term "the at least one aromatic carboxylic acid anhydride" lacks antecedent basis because claim 1 only recites "at least one of the carboxylic acid anhydrides is an aromatic acid anhydride," which does not suggest that there is necessarily at least one aromatic carboxylic acid anhydride.

With respect to claim 9, it is rejected for being dependent on a rejected claim.

Claims 4-8 have been amended herein to address the informalities pointed out by the Examiner, and clarify the claims in question. Specifically, claims 4-6 have been amended to

more clearly point out that the composition comprises at least one alicyclic acid anhydride, while claims 7-8 have been amended to more clearly point out that the composition comprises at least one aromatic acid anhydride. As these amendments are believed to overcome the Examiners rejections to claim 8, to which claim 9 depends, the rejection of claim 9 is now believed to be moot. Claims 4-9 are now believed to be in condition for allowance. Reconsideration of these rejections in light of the arguments presented herein is respectfully requested.

Claim Rejections -35 USC § 103

5. Claims 18-24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egan (GB 2 110 693) in view of Nonken (US 3,812,314) and further in view of Hollstein et al (US 5,354,939).

Egan discloses an acid-resistant flooring composition comprising an epoxy resin such as Araldite (page 1, line 49), sand filler, and granite chips (page 1, lines 29-32). The exemplified amount of epoxy to hardener is 5:3 (page 1, lines 54-55), wherein the ratio of filler to epoxy resin is 7:1 thus providing for an amount of hardener of 4.7 to 18.8 wt %.

Egan is silent with respect to the addition of at least one carboxylic acid anhydride.

Nonken teaches that Araldite resins contain either a dibasic acid or polyamine hardener wherein the dibasic acid anhydride hardener includes hexahydrophthalic anhydride (col. 5, lines 21-27).

Given that Egan teaches the use of Araldite resins and its variations (page 1, line 49) and further given that Nonken teaches that Araldite resins contain a dibasic acid anhydride such as hexahydrophthalic anhydride, it would have been obvious to one of ordinary skill in the art to utilize an acid anhydride as the Araldite hardener of Egan, there being no expected or surprising results by using the acid anhydride over polyamine.

While the combined teachings of Egan and Nonken provide for an acid anhydride such as hexahydrophthalic anhydride, it fails to teach other acid anhydride hardeners for epoxy resins.

Hollstein et al discloses epoxy resin compositions and teaches that typical hardeners include anhydrides of polycarboxylic acids such as phthalic anhydride and others (col. 4, lines 14-26). It is the Examiner's position that it is obvious to use more than one acid anhydride. It is well settled that it is

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prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. In re Lindner 457 F.2d 506, 509, 173 USPQ 356, 359 (CCPA 1972). Moreover the use of flake phthalic anhydrides are commonly used in the art and are obvious since they have more surface area.

Given that Egan and Nonken teach acid anhydride epoxy hardeners and further given the teachings by Hollstein et al regarding known acid anhydride epoxy hardeners, it would have been obvious to one of ordinary skill in the art to utilize at least of the known acid anhydride epoxy hardeners as taught by Hollstein in the flooring composition taught by Egan.

Applicant respectfully traverses this rejection of claims 18-24 and 27. Applicant contends that neither Egan, Nonken, or Hollstein *et al* (hereinafter "Hollstein"), alone or in combination, disclose or teach the compositions recited in claims 18-24 and 27. According to MPEP § 706.02(j) and MPEP § 2143, for a claim to be obvious, and to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be a) a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; b) a reasonable expectation of success; and c) the prior art reference (or references when combined) must teach or suggest all of the claim limitations, *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. *Id.* at 493 (emphasis added). Applicant contends that the Examiner has not identified any teaching or suggestion that Egan, Nonken, or Hollstein, alone or in combination, teach all of the claim limitations of the claims of the claims as amended with this communication.

Independent claims 18 and 27 has been amended herein to more accurately describe the Applicants instant invention. More specifically, claim 18 has been amended to reflect that the

inventive compositions of the instant invention comprise an epoxy resin and two or more carboxylic acid anhydrides, wherein at least one of the two or more carboxylic acid anhydrides is an alicyclic acid anhydride and the other is an aromatic acid anhydride. Independent claim 27 is similarly directed to a curable resinous composition comprising an epoxy resin, phthalic acid anhydride (an aromatic anhydride) and a mixture of at least two alicyclic acid anhydrides, among other components. The presently claimed inventive compositions, comprising at least an epoxy resin and two or more carboxylic acid anhydrides, one of which is an aromatic acid anhydride and the other of which is an acyclic acid anhydride, is not described, suggested, or taught in any of the cited prior art.

To point, neither Egan, Nonken, or Hollstein, alone or in combination, disclose or suggest all of the claim limitations of the presently claimed invention as presented in independent claims 18 and 27, or claims dependent thereon. More specifically, neither Egan, Nonken, or Hollstein, taken alone or in combination, describe or suggest a curable resinous composition comprising an epoxy resin and two or more carboxylic acid anhydrides, wherein at least one acid anhydride is an aromatic acid anhydride and at least one acid anhydride is an alicyclic acid anhydride. As admitted by the Examiner, Egan is silent with respect to the addition of a carboxylic acid anhydride as the hardener, suggesting only a flooring composition comprising an epoxy resin, a hardener, and other components. As further suggested by the Examiner, Nonken suggests only the use of dibasic acid anhydrides such as hexahydrophthalic anhydride (an alicyclic acid anhydride), and as further admitted by the Examiner, the combined teachings of Egan and Nonken fail to teach the use of other anhydride hardeners for use with an epoxy resin. The

Examiner additionally admits that the combined teachings of Egan and Nonken provide for an acid anhydride such as hexahydrophthalic anhydride (an alicyclic acid anhydride), but in combination fail to teach other acid anhydride hardeners for use in combination with an epoxy resin, let alone a mixture of two or more acid anhydrides. More specifically, both Egan and Nonken are silent with regard to the use of both an alicyclic carboxylic acid anhydride and an aromatic acid anhydride in combination with an epoxy resin for the preparation of a curable resinous composition having the improved scratch-resistant characteristics as described and claimed in the Applicant's instant invention.

Hollstein describes epoxy resin compositions comprising an epoxy resin, a filler, a polyether polyol and an organically modified sheet silicate (col. 1, ll. 34-49), wherein such product compositions are suitable for making cured products, typically for encapsulating electrical or electronic components. As a further feature, Hollstein suggests that the epoxy resin compositions may comprise a hardener, such as phthalic anhydride, nadic anyhydride, and others. However, Hollstein does not distinguish between alicyclic acid anhydrides and aromatic acid anhydrides, choosing instead to provide only a brief listing of anydrides which may be useful as hardeners. To this end, Hollstein is *completely silent* to the idea of combining either more than one, or both aromatic and alicyclic carboxylic acid anhydrides, with an epoxy resin and other components to form a resinous composition.

The Examiner also suggests that it is *her opinion* that it is obvious to use more than one acid anhydride, and states that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose, citing to *in re Lindner* 457

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F.2d 506, 509, 173 U.S.P.Q. 356, 359 (CCPA 1972). However, it is well established that the mere fact that references, and what they teach, can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990) (emphasis added). In the present case, none of the prior art of record and presented by the Examiner suggests the desirability of combining an alicyclic carboxylic acid anhydride and an aromatic carboxylic acid anhydride as hardeners in a resinous composition comprising an epoxy resin, which in turn leads to an improved, scratch-resistant composition suitable for use in counter tops and the like.

Further, obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 U.S.P.Q. 871, 881 (CCPA 1981). But, it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined only if there is some suggestion or incentive to do so." *Id.* In the present case, the prior art contains none. Both Egan and Nonken fail to provide such a combination of two or more carboxylic acid anhydrides as recited in independent claims 18 and 27, as admitted by the Examiner in the Final Action. In addition, Nonken is directed to a molded plastic electrical bushing having an encapsulated vacuum switch, wherein the combination of the bushing and vacuum switch have an end-to-end voltage rating that is at least twice as great as the withstand voltage rating of the switch in an unencapsulated state. Nonken is silent with regard to the preparation of resinous compositions for use in countertops and the like, focusing instead on

underground power distribution switching and bushing devices (col. 2, ll. 23-38), and may clearly be considered to be “non-analogous art,” which one of skill in the art would not look to in seeking a solution to the problems addressed by the present invention. Further, Holstein provides no motivation, and has no suggestion, to improve the characteristics of a resinous composition by including a combination of an aromatic and an alicyclic carboxylic acid anhydride to provide improved scratch resistance. As the motivation to combine the cited references is not present, specifically or inherently, this requirement for establishing a prima facie case of obviousness is also clearly absent.

Consequently, it would not be obvious to one of skill in the art to prepare a curable resinous composition comprising epoxy resin, at least one naturally-occurring inorganic material, granite chips, and two or more carboxylic acid anhydrides, one of which is aromatic and the other of which is alicyclic, as recited in independent claims 18 and 27, in order to obtain the advantageous compositions of Applicants instant invention.

Additionally, because independent claim 18, upon which claims 19-24 depend, has been distinguished above regarding Egan, Nonken, and Hollstein, it is believed that these claims are deemed allowable by depending upon an allowable independent claim. “If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)

In summary, none of the cited reference suggests combining the teachings. Furthermore, the three cited references, alone or in combination, do not teach all of the claim limitations for pending claims 18-24 and 27. Accordingly, in view of the arguments presented herein,

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Applicant requests that the rejections of claims 18-24 and 27 under 35 U.S.C. § 103(a) be withdrawn.

6. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egan (GB 2 110 693) in view of Nonken (US 3,812,314) and Hollstein et al (US 5,354,939) and further in view of Betts (US 3,924,880).

The discussion with respect to Egan, Nonken, and Hollstein et al in paragraph 5 above is incorporated here by reference.

Egan fails to disclose the use of its acid-resistant composition in a countertop or a heat-activated catalyst.

Betts teaches that laboratory counter tops are made of highly acid resistant materials such as epoxy resin (col. 1, lines 6-14). With respect to the heat-activated catalyst, it is considered that it would have been well within the capabilities of one of ordinary skill in the art to use heat and a heat-activated to prevent premature curing or to accelerate curing.

Given that acid-resistant compositions like those taught by Egan are used in laboratory countertops as taught by Betts, it would have been obvious to one of ordinary skill in the art to utilize Egan's composition in a countertop and thereby arrive at the presently cited claims.

Applicant respectfully traverses the rejection of claims 34-36. Egan, Nonken and Hollstein have been described above. Betts is directed to a composite laboratory counter top having a backing, substrate layer of a cheap material, such as chip board, plywood, or the like. Referring to Figure 1 of Betts, the counter top (10) further necessarily comprises an aperture (13) therethrough with spacer means (20) disposed in the aperture and which extends from the top surface of the top to the bottom surface thereof. According to Betts, the presence of the spacer minimizes compressive forces on the counter top and subsequently reduces all top cracking (col. 1, lines 40-50). Further according to Betts, the counter top can be made of a ceramic material, epoxy resins, soap stone, marble, and the like (col. 2, lines 15-25). Betts makes no mention or suggestion of a counter top material composition as described by Applicants in the presently

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pending claim 18, to which claim 34 refers. Independent claim 18 has been distinguished above. Briefly, even if one were to combine Egan, Nonken, Hollstein and Betts as suggested by the Examiner, Applicants presently claimed invention would not be the result, as the countertop would lack the scratch resistant characteristics, among others, which is unexpectedly found in the Applicants instant invention.

Claim 35 depends from independent claim 34, which Applicant contends is patentable as originally submitted and as detailed above. Similarly, claim 36 depends from claim 33 or claim 35, which in turn reference the compositions of independent claims 1 and 18, respectively. These independent claims, to which claim 36 refers, have been distinguished over Egan, Nonken, and Hollstein above, as none of these cited references, alone or in combination, suggest or describe the present composition comprising an epoxy resin and two or more acid anhydrides, wherein at least one of the acid anhydrides is an alicyclic acid anhydride and the other is an aromatic acid anhydride. Consequently, no amendment is made herein to claim 35 or 36 in response to this rejection. Reconsideration of this rejection in light of these arguments is appreciated.

In summary, none of the cited references, alone or in combination, suggests combining the teachings. Furthermore, the three cited references do not teach all of the claim limitations for pending claims 34 -36. Accordingly, Applicant respectfully requests that the rejections of claims 34-36 under 35 U.S.C. § 103(a) be withdrawn.

7. Claims 1-12, 15-17 and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egan (GB 2 110 693) in view of Nonken (US 3,812,314) and Hollstein et al (US 5,354,939) and further in view of Wypych (Handbook of Fillers).

The discussion with respect to Egan, Nonken, Hollstein in paragraph 5 above is incorporated here by reference.

Egan discloses that granite chips have a particle size of 3-20 mm (page 1, lines 29-32), wherein the volume ratio of granite to sand ranges from 1.0:1.2 to 1.0:2.7 (page 1, lines 36-38). Note that granite and sand have approximately the same density (about 2.6 g/m³) and therefore, even though the ratio of granite to sand is less than presently claimed, the ratio reads on the presently claimed ratio if separated out when a portion of the sand is in the larger particle portion.

Egan is silent with respect to the size or size distribution of the size particles and to the use of its composition in a countertop.

Wypych teaches that sand conventionally has a particle size of 2-90 microns (page 144).

Given that Egan teaches the use of sand and further that given that sand conventionally has a particle size of 2-90 microns, it would have been obvious to one of ordinary skill in the art to utilize conventional particles of sand, including those in the presently claimed.

Applicant respectfully traverses the rejection of claims 1-12, 15-17, and 25-31. Independent claims 1, 27 and 29 as presented herein are directed to a curable resinous composition comprising an epoxy resin and two or more carboxylic acid anhydrides, wherein at least one of the acid anhydrides is an aromatic acid anhydride and at least one of the other acid anhydrides is an alicyclic acid anhydride. As indicated previously, Egan, Nonken and Hollstein are silent with regard to curable resinous compositions comprising more than a single carboxylic acid anhydride, let alone two or more acid anhydrides at least one of which is aromatic and the other of which is alicyclic, as recited within independent claims 1, 27 and 29. In fact, as discussed above and as admitted by the Examiner, Egan and Nonken suggest only the use of a

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single alicyclic acid anhydride in epoxy resins. Hollstein similarly suggests on the use of a single acid anhydride as a hardener with an epoxy resin.

Wypych describes only the physical details of sand that can be used as a filler in a variety of materials and compositions. Wypych is silent to the use of sand fillers in resinous compositions, and makes no suggestions of the use of sands in combinations with epoxy resins. As such, because independent claims 1, 27 and 29 are directed to curable resinous compositions which includes two or more carboxylic acid anhydrides, at least one of which is aromatic and at least one of the other of which is alicyclic, and Applicant has found no disclosure or teaching in Egan, Nonken, Hollstein, or Wypych, alone or in combination, of a composition as recited by claims 1, 27 and 29, reconsideration of this rejection in light of these arguments is appreciated.

Claims 2-12, and 15-17 depend from independent claim 1. Claims 25-26 and 28 depend from independent claim 18, which has been previously distinguished over the cited references as well. Claims 30-31 depend from independent claim 29. Consequently, claims 2-12, 15-17, 25, 26, 28 and 30-31 are believed to be deemed allowable by depending from an allowable independent claim. *In re Fine*, supra.

Similarly, because independent claim 18, upon which claims 25 and 26 depend, have been distinguished above regarding at least Egan, Nonken, and Hollstein, it is believed that these claims are also deemed allowable by depending on an allowable independent claim.

8. Claims 32, 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egan (GB 2 110 693) in view of Nonken (US 3,812,314), Hollstein et al (US 5,354,939), and Wypych (Handbook of Fillers) and further in view of Betts (US 3,924,880).

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The discussion with respect to Egan, Nonken, Hollstein et al, and Wypych in paragraph 7 above is incorporated here by reference.

Egan fails to disclose the use of its acid-resistant composition in a countertop or a heat-activated catalyst.

Betts teaches that laboratory counter tops are made of highly acid-resistant materials such as epoxy resin (col. 1, lines 6-14). With respect to the heat-activated catalyst, it is considered that it would have been well within the capabilities of one of ordinary skill in the art to utilize heat and a heat-activated catalyst to prevent premature curing or to accelerate curing.

Given that acid-resistant compositions like those taught by Egan are used in laboratory countertops as taught by Betts, it would have been obvious to one of ordinary skill in the art to utilize Egan's composition in a countertop.

Applicant respectfully traverses the rejection of claims 32, 33 and 36. Egan, Nonken, Hollstein, Wypych and Betts have been described above. Applicant contends that similarly, claim 32 is patentable over the cited references, as none of the cited art suggests combining to form the compositions of the Applicants instant invention. Additionally, none of the cited references, alone or in combination, recite all of the claim limitations of the resinous composition of claim 1, to which claim 32, and dependent claim 33, refers.

Claim 33 depends from independent claim 32, which Applicant contends is patentable as originally submitted and as detailed above, in that it refers to a resinous composition of independent claim 1, which Applicant contends is patentable over the cited art. Consequently, no amendment is made herein to claim 33 in response to this rejection.

Claim 36 depends from claim 33 or claim 35, the latter of which depends from claim 34 which claims a countertop comprising the resinous composition of independent claim 18. Claim Reconsideration of these rejections in light of these arguments is appreciated.

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Conclusion

Of the 35 original pending claims in this application, claims 1, 4-8, and 18 have been amended herein. With this response, claims 1-12 and 15-36 are now pending in this application. Applicant respectfully submits that each claim is patentable, as detailed herein. A notice of allowance is respectfully requested.

Claims 1, 4-8 and 18 have been amended herein to address issues of clarity, or correct errors in claim form and/or antecedent basis. Applicant contends that these amendments to the claims do not constitute the addition of new matter.

Applicant does not believe that any fees are due at this time. However, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to this document, the Commissioner is hereby authorized to deduct the requisite fees necessary to make this and related papers timely and effective from Locke Liddell & Sapp LLP Deposit Account No. 12-1322, referencing matter number 019377-00100.

Applicant thanks the Examiner for her consideration and effort on this matter and submits that this application is now in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

In order to expedite matters on this case, the Examiner is encouraged to contact the undersigned directly in order to advance this application toward allowance.

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